



30TH WORLD RADIOCOMMUNICATION SEMINAR

24 - 28 October 2022

Geneva, Switzerland

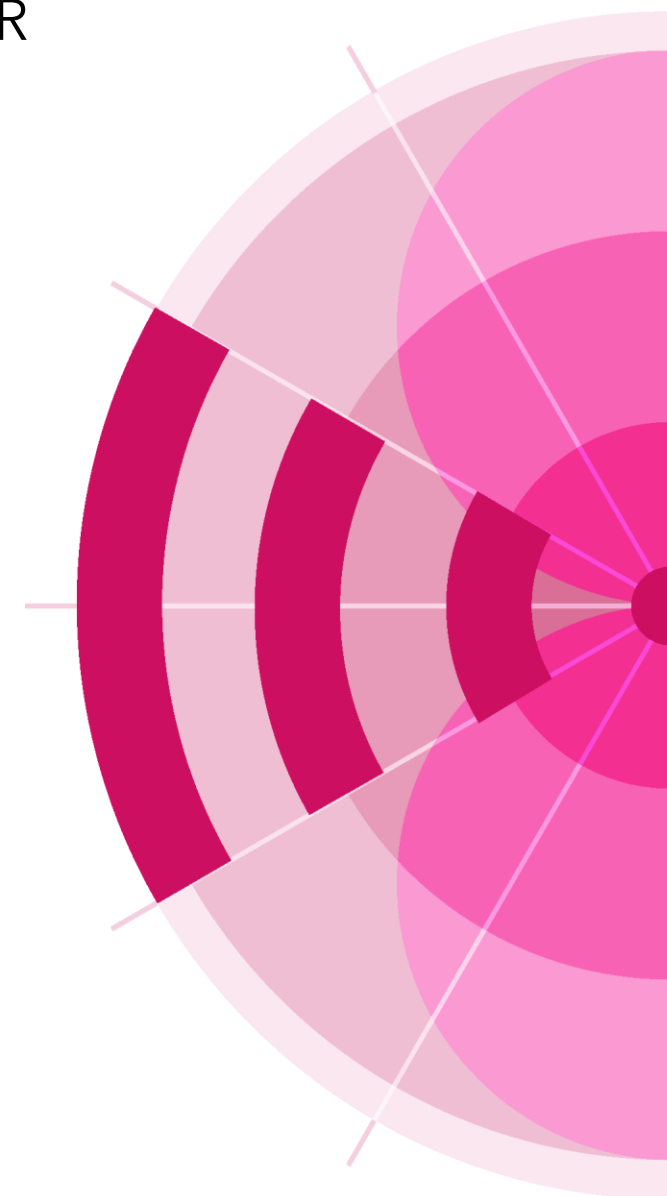
ITU-R Study Groups and the Radiocommunication Assembly

Mr. Sergio Buonomo

Chief, Radiocommunication Study Groups Department

www.itu.int/go/wrs-22

#ITUWRS



ITU-R Study Groups

The work of the Study Groups is governed by the **ITU-R Resolutions**, in particular Resolution ITU-R 1, **ITU-R Questions** and **WRC agenda items** requesting preparatory studies.



The studies are **driven by contributions** from the ITU-R Sector Membership.



Each Study Group **carries out studies**, adopting Recommendations and Questions, as well as approving Reports, Decisions, Opinions and Handbooks, on **radiocommunication matters under its mandate**.



These studies are the **technical, operational and procedural basis for decisions taken at WRCs** and for efficient use of the radio spectrum and the geostationary-satellite orbit.

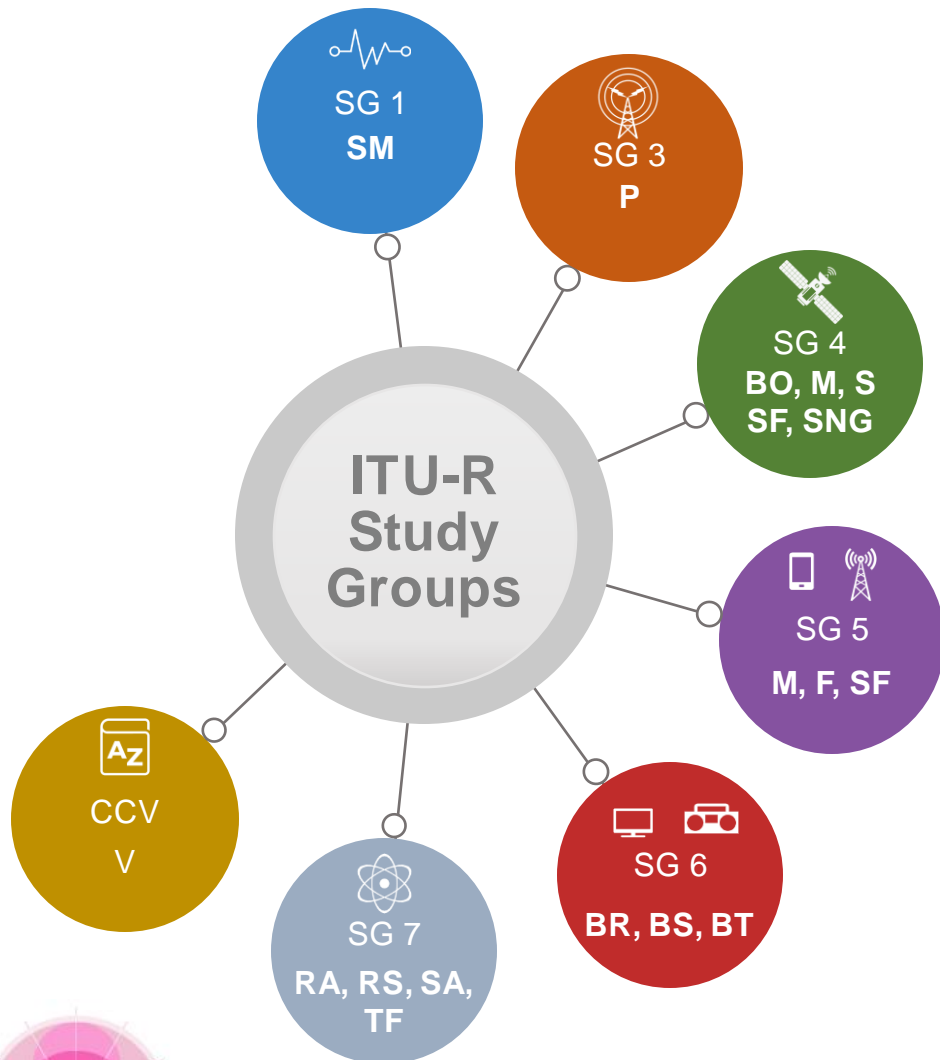


ITU-R Study Groups and their Working Parties



SG 1	<ul style="list-style-type: none"> WP 1A Spectrum engineering techniques WP 1B Spectrum economic approaches WP 1C Spectrum monitoring
SG 3	<ul style="list-style-type: none"> WP 3J Propagation fundamentals WP 3K Point-to-area propagation WP 3L Ionospheric propagation and radio noise WP 3M Point-to-point and Earth-space propagation
SG 4	<ul style="list-style-type: none"> WP 4A Efficient orbit/satellite utilization for FSS and BSS WP 4B Systems, air interfaces, performance and availability objectives for FSS, BSS & MSS WP 4C Efficient orbit/satellite utilization for MSS and RDSS
SG 5	<ul style="list-style-type: none"> WP 5A Land mobile, fixed, amateur and amateur-satellite services WP 5B Maritime and aeronautical mobile services and radiodetermination WP 5C HF and systems in the fixed and land mobile services WP 5D IMT systems
SG 6	<ul style="list-style-type: none"> WP 6A Terrestrial broadcasting delivery WP 6B Broadcast service assembly and access WP 6C Programme production and quality assessment TG 6/1 WRC-23 agenda item 1.5
SG 7	<ul style="list-style-type: none"> WP 7A Time signals and frequency standard emissions WP 7B Space radiocommunication applications & research, meteorological satellite, etc. WP 7C Remote sensing systems: Earth exploration, space weather sensors, etc. WP 7D Radio astronomy
CCV	<ul style="list-style-type: none"> Coordination Committee for Vocabulary

Types of ITU-R SGs official documents



Series	Title
BO	Satellite delivery
BR	Recording for production, archival and play-out; film for television
BS	Broadcasting service (sound)
BT	Broadcasting service (television)
F	Fixed service
M/M	Mobile, radiodetermination, amateur and related satellite services
P	Radiowave propagation
RA	Radio astronomy
RS	Remote sensing systems
S	Fixed-satellite service
SA	Space applications and meteorology
SF	Frequency sharing & coordination between fixed-satellite & fixed service systems
SM	Spectrum management
SNG	Satellite news gathering
TF	Time signals and frequency standards emissions
V	Vocabulary and related subjects

Development of the study period

*Study Groups

- Adopt ITU-R Recommendations;
- Approve ITU-R Reports and other documents.

Working Parties / Task Groups

- Conduct studies in response to ITU-R and WRC Resolutions;
- Carry out preliminary studies on WRC agenda items;
- Prepare ITU-R Recommendations, Reports and other documents.

RAG

- Advises the **BR Director**;
- May take some of the responsibilities of the RA between assemblies.

4-year study period

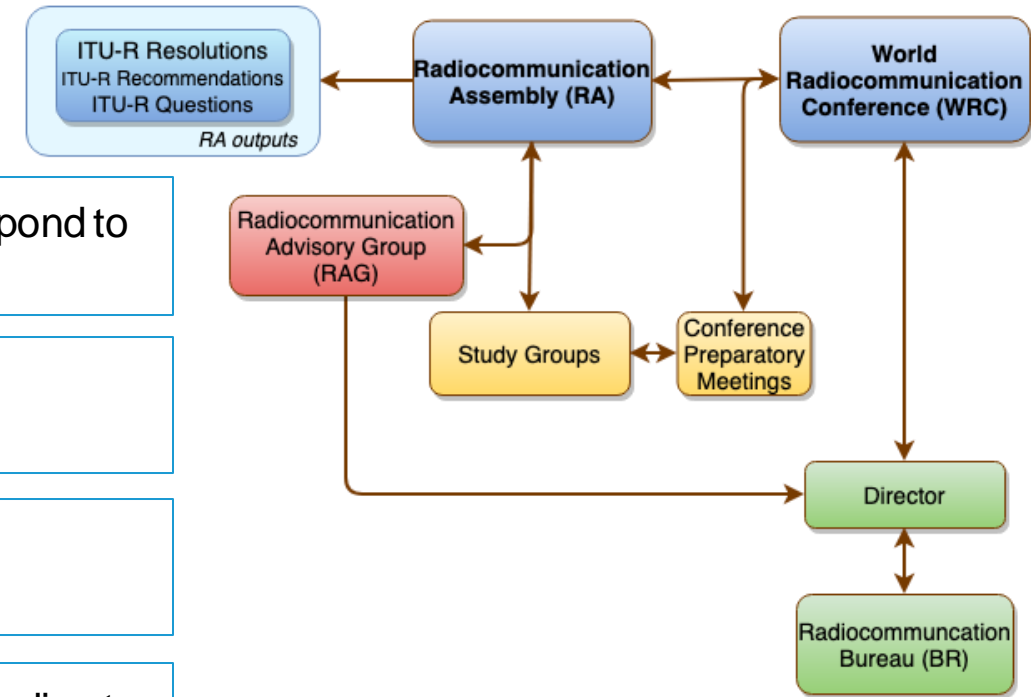


Mission of the Radiocommunication Assembly

Radiocommunication Assemblies (RAs) are responsible for the structure, programme and approval of radiocommunication studies. They are normally convened every four years and may be associated in time and place with World Radiocommunication Conferences (WRCs).

The Radiocommunication Assembly:

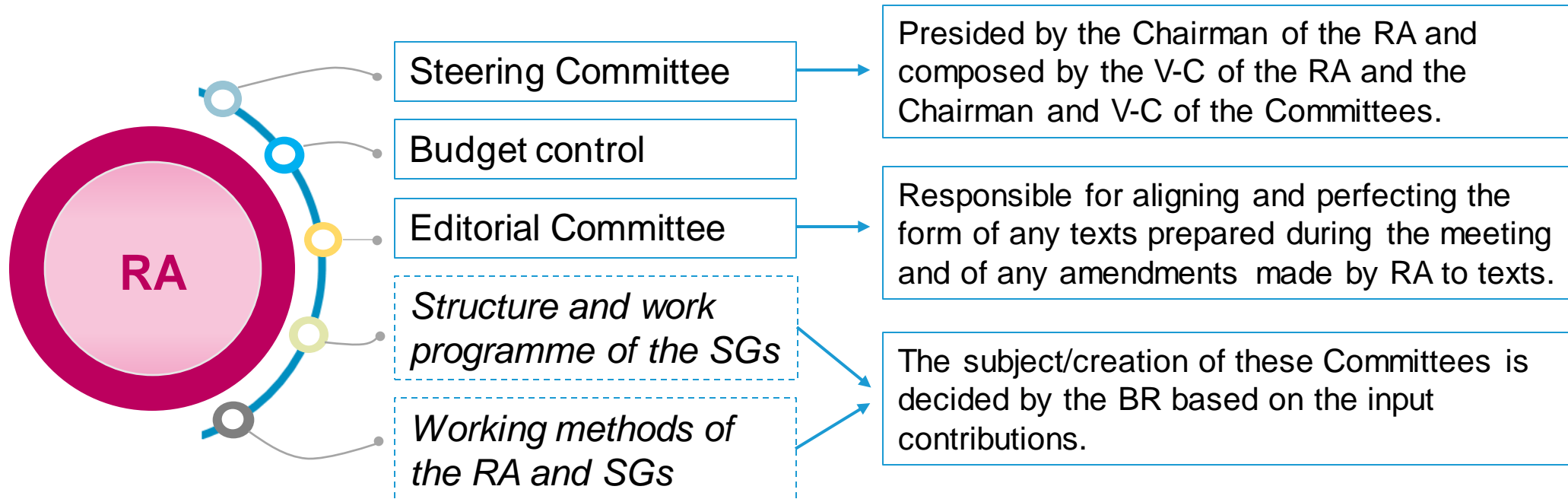
- ▶ provides the necessary technical basis for the work of WRCs, respond to other requests from ITU conferences;
- ▶ suggests suitable topics for the agenda of future WRCs;
- ▶ approves and issues ITU-R Recommendations and Questions developed by the Study Groups;
- ▶ sets the programme for and disband/establish Study Groups according to need.



Article 13 of the ITU Constitution and Article 8 of the ITU Convention

Structure of the Radiocommunication Assembly

Article 13 of the ITU Constitution and Article 8 of the ITU Convention assign the duties of the Radiocommunication Assembly (RA). Therefore, the RA shall conduct the work of each Assembly by setting up Committees.

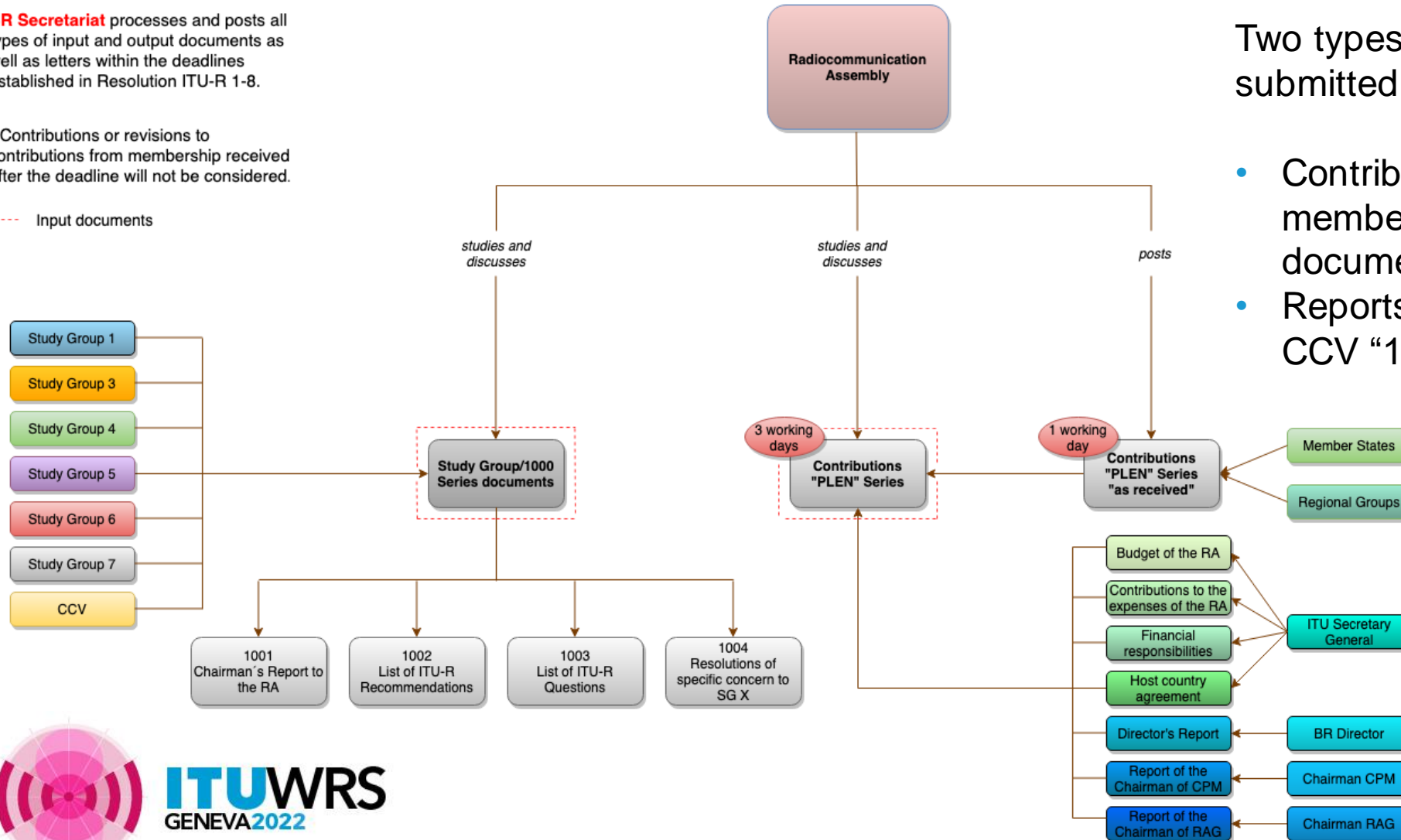


Type of contributions submitted to the RA

BR Secretariat processes and posts all types of input and output documents as well as letters within the deadlines established in Resolution ITU-R 1-8.

* Contributions or revisions to contributions from membership received after the deadline will not be considered.

----- Input documents



Two types of input contributions are submitted to the RA:

- Contributions submitted by the membership “PLEN” Series documents.
- Reports from each Study Group and CCV “1000 Series documents”.

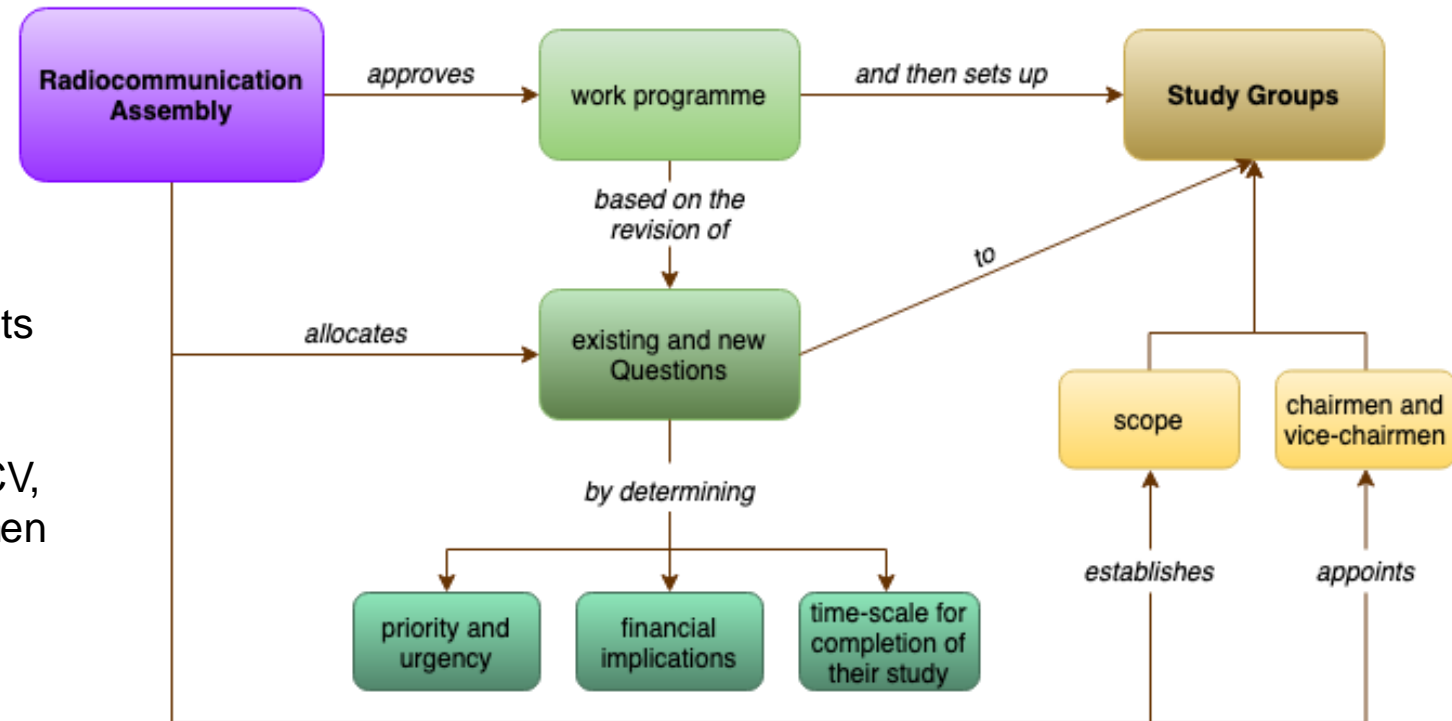
Establishment of ITU-R Study Groups and their work programme

The Radiocommunication Assembly approves the programme of work arising from the review of existing questions and new questions and determine the priority, urgency, estimated financial implications and time-scale for the completion of their study.

The work programme and Questions of ITU-R Study Groups is contained in [Resolution ITU-R 5](#).

In light of the work programme, the Radiocommunication Assembly establishes the appropriate number ITU-R Study Groups and appoints their chairmen and vice-chairmen.

The structure of the ITU-R Study Groups and the CCV, their scope and appointed chairmen and vice-chairmen can be found in [Resolution ITU-R 4](#).



Nos. 132, 133, 136A and 136B of the ITU Convention

Outputs of the Radiocommunication Assembly

The main outputs of the Radiocommunication Assembly are the ITU-R Resolutions. The ITU-R Resolutions contain guidance on the working methods and organisation of the ITU-R.

- Currently there are **40 Resolutions** in force.
- **Resolution ITU-R 1** is the primary tool of the **working methods** of the ITU Radiocommunication Sector.



Topics of common interest for ITU-R, ITU-T & ITU-D

Accessibility

- Implementation of PP Resolution 175 (Rev. Bucharest, 2022)
- Studies in response to Resolution [ITU-R 67](#)
- Active participation in JCA on Accessibility & Human Factors

Analogue to digital switch off

- Studies related to spectrum management aspects relevant to the digital dividend (Report [ITU-R SM.2353-0](#))
- ITU-R studies on TV White Spaces (Report [ITU-R SM.2405-1](#))
- Broadcasting Regional Plans: GE06 Agreement

Deployment of broadband

- Implementation of PP Resolution 204 (Rev. Bucharest, 2022)
- Studies in response to Resolution [ITU-R 69](#)

Human exposure to electromagnetic fields

- Implementation of PP Resolution 176 (Rev. Bucharest, 2022)
- Studies in response to Resolutions [ITU-R 6](#) and [ITU-R 7](#)

Spectrum management

- Spectrum management principles and techniques
- Spectrum monitoring, long-term strategies for spectrum utilization
- Economic approaches to national spectrum management
- Automated techniques and assistance to developing countries

Telecommunications/ICTs for e-Health

- Implementation of PP Resolution 183 (Rev. Busan, 2014)
- Studies in response to Resolution [ITU-R 69](#)

Telecommunications for rural areas

- Studies to enhance the deployment of telecommunication services in remote and underserved rural areas.

Disaster mitigation and relief and emergency telecommunications

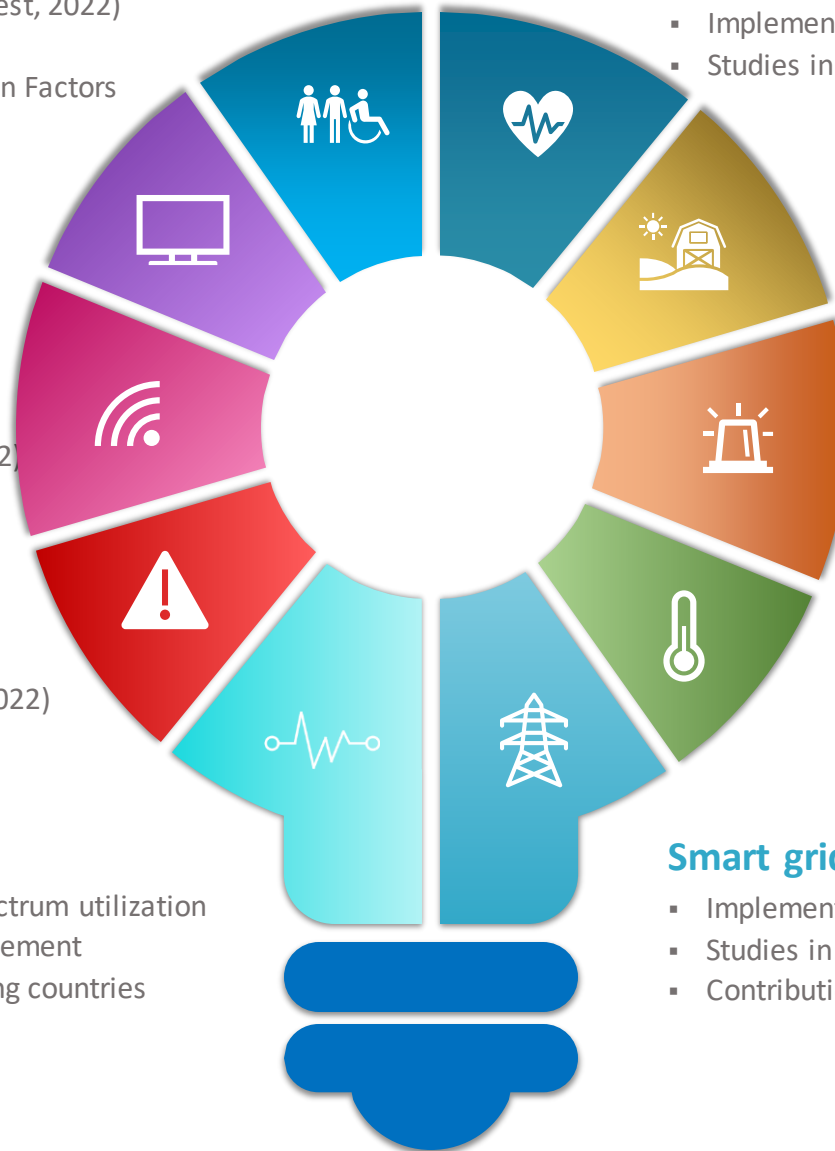
- Cooperation Emergency Telecommunications Task Force
- Implementation of PP Resolution 136 (Rev. Bucharest, 2022)
- Studies in response to Resolution [ITU-R 60](#)

Climate change

- Cooperation with ITU Climate Change
- Implementation of PP Resolution 182 (Rev. Bucharest, 2022)
- Studies in response to Resolution [ITU-R 60](#) and Resolutions [646 \(Rev.WRC-19\)](#) and [647 \(Rev.WRC-19\)](#)

Smart grids

- Implementation of PP Resolution 197 (Rev. Bucharest, 2022)
- Studies in response to Resolutions [ITU-R 6](#), [ITU-R 66](#) and [ITU-R 67](#)
- Contribution to the improvement of IoT applications and smart cities



Thank you!

ITU – Radiocommunication Bureau

Questions to brmail@itu.int or brsgd@itu.int



Optional slides

Study Group 1 – Spectrum management



WP 1A

Spectrum engineering techniques

WP 1B

Spectrum management methodologies
and economic strategies

WP 1C

Spectrum monitoring

Scope

- ❖ Spectrum management principles and techniques;
- ❖ General principles of sharing;
- ❖ Spectrum monitoring;
- ❖ Long-term strategies for spectrum utilization;
- ❖ Economic approaches to national spectrum management automated techniques;
- ❖ Assistance to developing countries;
- ❖ Wireless Power Transmission (incl. for electric vehicles);
- ❖ Harmonization for short-range devices;
- ❖ Performance evaluation of mobile Direction Finder units;
- ❖ Electromagnetic field measurements to assess human exposure.



Chairman: Mr. Wael Sayed



Counsellor: Mr. Philippe Aubineau



[SG 1 website](#)

Study Group 3 – Radiowave propagation



WP 3J

Propagation fundamentals

WP 3K

Point-to-area propagation

WP 3L

Ionospheric propagation and radio noise

WP 3M

Point-to-point and Earth-space propagation

Scope

- ❖ Propagation of radio waves in ionized and non-ionized media;
- ❖ Characteristics of radio noise, for the purpose of improving radiocommunication;
- ❖ Propagation models in support to all radio services;
- ❖ Building entry loss models;
- ❖ Clutter loss models.

Study Group 4 – Satellite Services



WP 4A

Efficient orbit/spectrum utilization for FSS and BSS satellite services

WP 4B

Systems, interfaces, performance availability for FSS, BSS & MSS plus SNG

WP 4C

Efficient orbit/spectrum utilization for MSS and RDSS

Scope

- ❖ Systems and networks for:
 - fixed-satellite service;
 - mobile-satellite service;
 - broadcasting satellite service;
 - Radiodetermination and radio navigation-satellite service.
- ❖ IP global broadband Internet access via satellite;
- ❖ Integration of satellite systems into Next Generation Access Technologies (5G);
- ❖ Early warning and relief operations.



Chairman: Mr. Victor Strelets



Counsellor: Mr. Nelson Malaguti



[SG 4 website](#)

Study Group 5 – Terrestrial Services



WP 5A

Mobile >30 MHz, wireless access (fixed service), amateur including satellite services

WP 5B

Maritime mobile & GMDSS, aeronautical mobile & radiodetermination services

WP 5C





Fixed wireless systems; HF other <30 MHz in fixed & mobile services

WP 5D

IMT Systems

Scope

- ❖ Radio local area networks (RLANs), amateur service and emergency telecommunications and Intelligent Transport Systems (ITS);
- ❖ Wireless communications;
- ❖ Global Maritime Distress and Safety System (GMDSS), the aeronautical mobile service, the radiodetermination service, including both radiolocation and radionavigation services;
- ❖ Fixed service communications;
- ❖ Fixed wireless access (FWA) systems and HAPS;
- ❖ IMT-2000, IMT-Advanced and IMT-2020: which provide the global platform on which to build the next generation (5G) of mobile broadband connectivity;
- ❖ Machine-to-Machine communications including IoT.

 Chairman: Mr. Martin Fenton
 Counsellor: Mr. Uwe Löwenstein
 Counsellor WP 5B: Mr. Vadim Nozdrin
 [SG 5 website](#)

Study Group 6 – Broadcasting Service



WP 6A

Terrestrial broadcasting delivery

WP 6B

Broadcast service assembly and access

WP 6C

Content production & quality assessment

Task Group 6/1

WRC-23 agenda item 1.5

Scope

- ❖ Radiocommunication broadcasting, including vision, sound, multimedia data services intended for delivery to the general public;
- ❖ New audio-visual formats (HDTV, UHDTV, immersive sound);
- ❖ Formats for international content exchange;
- ❖ Compression techniques & new multiplexing techniques (MMT);
- ❖ New DTTB systems and development in IBB systems;
- ❖ Advancing accessibility services;
- ❖ In Region 1, review spectrum use & needs of existing services & consider possible regulatory actions in the 470-694 MHz band in accordance with Resolution **235 (WRC-15)**.

Study Group 7 – Science Services



WP 7A

Time signals and frequency standard emissions for terrestrial & satellite

WP 7B

Space radiocommunication applications & research & meteorological satellite

WP 7C

Satellite remote sensing systems, MetAids, weather & research sensors

WP 7D

Radio & radar astronomy sensors Earth- & space-based, including VLBI

Scope

- ❖ Preserving spectrum for operation and development of meteorological applications;
- ❖ Global environment monitoring – atmosphere (including greenhouse gases emissions), oceans, land surface, biomass, etc.;
- ❖ Weather forecasting and climate change monitoring and prediction;
- ❖ Detection and tracking of many natural and man-made disasters (earthquakes, tsunamis, hurricanes, forest fires, oil leaks, etc);
- ❖ Providing alerting/warning information;
- ❖ Damage assessment and planning relief operations;
- ❖ Use of radio spectrum for meteorology in close collaboration with WMO.

Coordination Committee for Vocabulary (CCV)



CCV

Coordination Committee for Vocabulary
The terminology is included in the [“ITU Terms and Definitions” database](#).


Scope

Coordination and approval of:

- ❖ vocabulary, including abbreviations and initials;
- ❖ related subjects, quantities and units, graphical & letter symbols.

In close collaboration with:

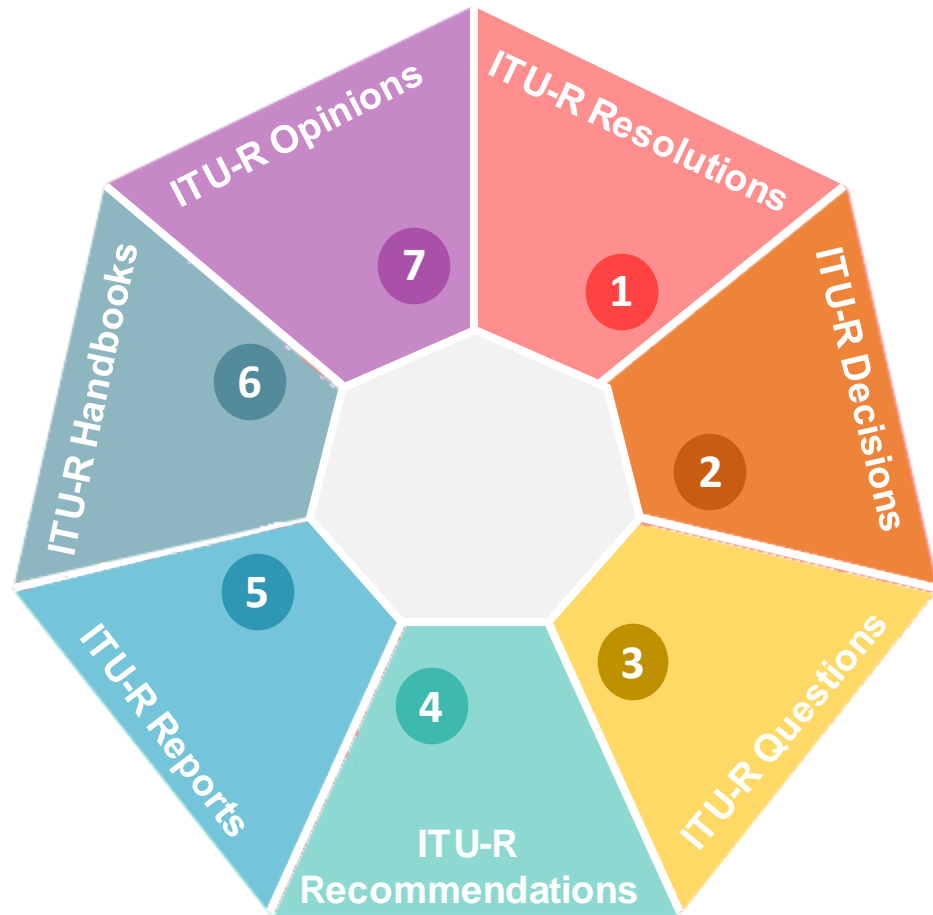
- ❖ the Radiocommunication Study Groups;
- ❖ ITU-D and ITU-T Sectors
- ❖ the General Secretariat;
- ❖ Conferences and Publications Department;
- ❖ the International Electrotechnical Commission (IEC);
- ❖ other interested organizations.

 Chairman: Mr. Christian Rissone

 Counsellor: Mr. Nelson Malaguti

 [CCV website](#)

Documentation of ITU-R



- 1 A text giving instructions on the organization, methods or programmes of RA or SG work. (§ [A2.3.1](#))
- 2 A text giving instructions on the organization of the work of a Study Group. (§ [A2.4.1](#))
- 3 A statement of a technical, operational or procedural study, generally seeking a Recommendation, Report or Handbook. (§ [A2.5](#))
- 4 An answer to a Question or part(s) of a Question or other topics defined in Annex 1 (§ [A1.3.1.2](#))
- 5 A technical, operational or procedural statement, prepared by a Study Group on a given subject. (§ [A2.7](#))
- 6 Provide a statement of the current knowledge, the present position of studies, or of good operating or technical practice. (§ [A2.8.1](#))
- 7 A text containing a proposal or a request destined for another and not necessarily relating to a technical subject (§ [A2.9.1](#))

Roadmap towards RA-23 and WRC-23

